

# PATENT COOPERATION TREATY

From the  
INTERNATIONAL PRELIMINARY EXAMINING AUTHORITY

PCT

To:

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NOTIFICATION OF TRANSMITTAL OF  
INTERNATIONAL PRELIMINARY  
REPORT ON PATENTABILITY  
(Chapter II of the Patent Cooperation Treaty) *MU*

(PCT Rule 71.1)

Date of mailing  
(day/month/year)

22-03-2005

Applicant's or agent's file reference

20022150 WO

IMPORTANT NOTIFICATION

International application No.

PCT/FI2003/000898

International filing date (day/month/year)

24-11-2003

Priority date (day/month/year)

05-12-2002

Applicant

Outokumpu Oyj  
et al

1. The applicant is hereby notified that this International Preliminary Examining Authority transmits herewith the international preliminary report on patentability and its annexes, if any, established on the international application.
2. A copy of the report and its annexes, if any, is being transmitted to the International Bureau for communication to all the elected Offices.
3. Where required by any of the elected Offices, the International Bureau will prepare an English translation of the report (but not of any annexes) and will transmit such translation to those Offices.

#### 4. REMINDER

The applicant must enter the national phase before each elected Office by performing certain acts (filing translations and paying national fees) within 30 months from the priority date (or later in some Offices) (Article 39(1)) (see also the reminder sent by the International Bureau with Form PCT/IB/301).

Where a translation of the international application must be furnished to an elected Office, that translation must contain a translation of any annexes to the international preliminary report on patentability. It is the applicant's responsibility to prepare and furnish such translation directly to each elected Office concerned.

For further details on the applicable time limits and requirements of the elected Offices, see Volume II of the *PCT Applicant's Guide*.

The applicant's attention is drawn to Article 33(5), which provides that the criteria of novelty, inventive step and industrial applicability described in Article 33(2) to (4) merely serve the purposes of international preliminary examination and that "any Contracting State may apply additional or different criteria for the purposes of deciding whether, in that State, the claimed invention is patentable or not" (see Also Article 27(5)). Such additional criteria may relate, for example, to exemptions from patentability, requirements for enabling disclosure, clarity and support for the claims.

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**PATENT COOPERATION TREATY**  
**PCT**  
**INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY**  
(Chapter II of the Patent Cooperation Treaty)

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference <b>20022150 WO</b>	<b>FOR FURTHER ACTION</b> See Form PCT/IPEA/416	
International application No. <b>PCT/FI 2003/000898</b>	International filing date ( <i>day/month/year</i> ) <b>24.11.2003</b>	Priority date ( <i>day/month/year</i> ) <b>05.12.2002</b>
International Patent Classification (IPC) or national classification and IPC <b>C22B 7/04</b>		
Applicant <b>Outokumpu Oyj et al</b>		

<p>1. This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36.</p> <p>2. This REPORT consists of a total of <u>4</u> sheets, including this cover sheet.</p> <p>3. This report is also accompanied by ANNEXES, comprising:</p> <p>a. <input checked="" type="checkbox"/> (<i>sent to the applicant and to the International Bureau</i>) a total of <u>2</u> sheets, as follows:</p> <p><input type="checkbox"/> sheets of the description, claims and/or drawings which have been amended and are the basis of this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions).</p> <p><input type="checkbox"/> sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental Box.</p> <p>b. <input type="checkbox"/> (<i>sent to the International Bureau only</i>) a total of (indicate type and number of electronic carrier(s)) _____, containing a sequence listing and/or tables related thereto, in computer readable form only, as indicated in the Supplemental Box Relating to Sequence Listing (see Section 802 of the Administrative Instructions).</p> <p>4. This report contains indications relating to the following items:</p> <p><input checked="" type="checkbox"/> Box No. I Basis of the report</p> <p><input type="checkbox"/> Box No. II Priority</p> <p><input type="checkbox"/> Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability</p> <p><input type="checkbox"/> Box No. IV Lack of unity of invention</p> <p><input checked="" type="checkbox"/> Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement</p> <p><input type="checkbox"/> Box No. VI Certain documents cited</p> <p><input type="checkbox"/> Box No. VII Certain defects in the international application</p> <p><input checked="" type="checkbox"/> Box No. VIII Certain observations on the international application</p>
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Date of submission of the demand <b>16.06.2004</b>	Date of completion of this report <b>09.03.2005</b>
Name and mailing address of the IPEA/SE Patent- och registreringsverket Box 5055 S-102 42 STOCKHOLM Facsimile No. +46 8 667 72 88	Authorized officer <b>Mårten Hulthén/MP</b> Telephone No. +46 8 782 25 00

## INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.

PCT/FI 2003/000898

## Box No. I Basis of the report

1. With regard to the language, this report is based on the international application in the language in which it was filed, unless otherwise indicated under this item.

This report is based on a translation from the original language into the following language \_\_\_\_\_, which is the language of a translation furnished for the purposes of:

- international search (under Rules 12.3 and 23.1(b))  
 publication of the international application (under Rule 12.4)  
 international preliminary examination (under Rules 55.2 and/or 55.3)

2. With regard to the elements of the international application, this report is based on (replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report):

the international application as originally filed/furnished

the description:

pages 1 - 5 as originally filed/furnished

pages\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_

pages\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_

the claims:

pages \_\_\_\_\_ as originally filed/furnished

pages\* \_\_\_\_\_ as amended (together with any statement) under Article 19

pages\* 7 - 8 received by this Authority on 22.10.2004

pages\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_

the drawings:

pages 1 as originally filed/furnished

pages\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_

pages\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_

a sequence listing and/or any related table(s) – see Supplemental Box Relating to Sequence Listing.

3.  The amendments have resulted in the cancellation of:

- the description, pages \_\_\_\_\_  
 the claims, Nos. \_\_\_\_\_  
 the drawings, sheets/figs \_\_\_\_\_  
 the sequence listing (specify): \_\_\_\_\_  
 any table(s) related to the sequence listing (specify): \_\_\_\_\_

4.  This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).

- the description, pages \_\_\_\_\_  
 the claims, Nos. \_\_\_\_\_  
 the drawings, sheets/figs \_\_\_\_\_  
 the sequence listing (specify): \_\_\_\_\_  
 any table(s) related to the sequence listing (specify): \_\_\_\_\_

\* If item 4 applies, some or all of those sheets may be marked "superseded."

**Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

**1. Statement**

Novelty (N)	Claims	<u>1-10</u>	YES
	Claims	_____	NO
Inventive step (IS)	Claims	_____	YES
	Claims	<u>1-10</u>	NO
Industrial applicability (IA)	Claims	<u>1-10</u>	YES
	Claims	_____	NO

**2. Citations and explanations (Rule 70.7)**

Amended claims 1-10 were filed on 27.10.2004

Claim 1 has been amended in a manner that it contains the restriction that the dissolved copper is precipitated before returning it to the smelting process. Document US 3632308 has, therefore, been reconsidered not to be of particular relevance.

Documents cited as being of particular relevance:

D1 DE 2348005

D2 WO0149890

D2 (e.g. figure 2) discloses a method according to the preamble of claim 1. The method of claim 1 of the application differs from D2 in that copper is precipitated as defined in the characterizing part of the claim. The invention provides an alternative solution for copper recovery from the slag that is created in the process. A person who has knowledge of D2 and seeks an alternative solution would look into other processes where copper is recovered from slag.

D1 (claims 2-3) discloses the leaching of slag (page 3, 4<sup>th</sup> paragraph), dissolution of copper and precipitating of the copper. The process has a general application (page 1, 1<sup>st</sup> paragraph) for the recovery of copper from slag or similar materials obtained in different processes.

It is considered to be obvious to a person skilled in the art to use the knowledge from D1 in the process revealed by D2 in order to arrive at a method defined by claim 1 of the application. Consequently, claim 1 lacks an inventive step.

The dependent claims 2-10 define embodiments that are not considered to involve an inventive step in regard to the cited documents.

**INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY**International application No.  
PCT/FI 2003/000898**Box No. VIII Certain observations on the international application**

The following observations on the clarity of the claims, description, and drawings or on the question whether the claims are fully supported by the description, are made:

Claim 9 does not refer to precipitation and therefore can no longer be subordinated to claim 1 (PCT Rule 6.4 (a) and (b)).

7 JC13 Rec'd PCT/PTO 26 MAY 2005

CLAIMS

1. A method for recovering copper from slag created in the production of blister copper processed directly from concentrate in a suspension smelting furnace, such as a flash smelting furnace, **characterized** in that at least part of the slag is leached in at least one step to dissolve copper of the slag, the dissolved copper is precipitated and the precipitated copper is returned to the smelting process.
2. A method according to claim 1, **characterized** in that the slag is granulated and ground before leaching.
3. A method according to claim 1 or 2, **characterized** in that the leaching is carried out with sulfuric acid.
4. A method according to claim 1 or 2, **characterized** in that the leaching is carried out with an ammoniacal solution.
5. A method according to claim 1 or 2, **characterized** in that the leaching is carried out with a chloridic solution.
6. A method according to claim 1 or 2, **characterized** in that the leaching is carried out as a bacteria solution.
7. A method according to any of the preceding claims, **characterized** in that after leaching, the copper is recovered by hydroxide precipitation.
8. A method according to claim 1 – 6, **characterized** in that after leaching, the copper is recovered by sulfide precipitation.
9. A method according to claim 1 – 6, **characterized** in that after leaching, the copper is recovered in liquid-liquid extraction and electrolysis as cathode copper.

22-10-2004

10. A method according to claim 7 or 8, **characterized** in that the copper-bearing slag created in precipitation is conducted back into the suspension smelting furnace.

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